REMARKS

In the Office Action the Examiner has noted that claims 1-12 are pending in the application. Claims 4-6, 8, 10 and 12 have been allowed and claims 1-3, 7, 9 and 11 have been rejected as unpatentable over the prior art. Thus, claims 1-12 are pending in the application. The Examiner's rejections are traversed below.

THE PRIOR OFFICE ACTION

In the prior Office Action the Examiner rejected claims 1-5, 7, 9 and 10 as unpatentable over newly cited U.S. Patent 4,613,858 to Davidson, et al., either taken alone or in combination with the previously cited U.S. Patent 5,565,856 to Takaba et al.

NEW PRIOR ART REJECTIONS

On pages 2-4 of the Office Action the Examiner has withdrawn the prior rejections and has rejected claims 1-3, 7, 9 and 11 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5,204,954 to Hammer et al.

INTERVIEW

Appreciation is expressed to the Examiner for the telephone interview granted by the Examiner on July 3, 2007. At the interview the Applicants discussed claim 1 and cited U.S. Patent 5,204,954 to Hammer et al. As discussed below, the Applicants took the position that the counter in Hammer et al. merely counts a number of work requests and does not measure a time during which a logical output of the communication bus remains at a first logic level. The Examiner acknowledged that the portion of Hammer et al. which the Examiner had been relying upon probably does not teach the feature of measuring a time during which a logical output of the communication bus remains at a first logic level. However, the Examiner indicated in evaluating the Applicants' Response, he would review all of the Hammer reference and possibly do a new search to determine whether this feature exists elsewhere in the prior art. Other points raised during the interview are included below.

CLAIM 1

Claim 1 is directed to an abnormality detection device for detecting an abnormality in a communication bus. The device includes a timer counter and a comparator which the Examiner

alleges to be taught at Fig. 7 and column 9, lines 53-63 of Hammer et al.

The Hammer et al. patent is directed to a remote storage management mechanism and method to control workflow between processes on a bus and to reverse the normal flow of communications between processes on bus units not having symmetrical DMA capabilities. On pages 2 and 3 of the Office Action the Examiner takes the position that the claimed "timer counter" and "comparator" are taught by Fig. 7 and column 9, lines 53-63 of Hammer et al.

Fig. 7 of Hammer et al. is a block flow diagram of a server bus unit showing a flow involved in determining if there are sufficient resources available in a connection group, and sending a QUEUE FULL message if they are not (column 3, lines 33-36). Thus, Fig. 7 of Hammer explains the operation of a bus unit 50 (or 52) in Fig. 2 and there is no clear indication as to which portion of the bus unit 50 (or 52) is executing the operation shown. For example, it may be the processor 56 (or 66) which executes the operation of Fig. 7, but it is unclear. Further, column 9, lines 47-63 state:

> Corresponding flow in the server bus unit is shown in FIG. 7 and 8.
> On receipt of an OPSTART message at 250 by a server bus unit,
> the connection group is determined at 252, and its counter is
> incremented at 254. A counter limit is used to define the number
> of work requests which a connection group may have outstanding
> at any one time. The value of the counter is compared to the
> counter limit at 256, and if the value is greater than the limit, a Q
> FULL FLAG is set at 258 and QUEUE FULL status is sent in a Bus
> Error Condition Message to the originating bus unit at 260, and
> processing continues at 261. In a further embodiment, actual
> resources available are monitored and compared to the resources
> required for a work request indicated by the OPSTART. If the
> counter is not greater than the limit, but the Q FULL FLAG is
> detected as on at 262, the flow returns to 260 and the QUEUE
> FULL status is sent . . .

From the above portion of Hammer which is relied on by the Examiner, it is clear that the counter that is incremented in step 254 of Hammer merely counts a number of work requests and is not "configured to measure a time during which a logical output of said communication bus remains at a first logical level which is a high level or a low level "as set forth in claim 1.

It is clear that Hammer merely relates to a remote storage management method and does not relate to detecting an abnormality in a communication bus. In addition, while the Examiner asserts that Fig. 2 of Hammer shows an abnormality detection device that detects the abnormality of the communication bus and is independent of the CPU that controls the communication bus, Fig. 2 and the related description in Hammer do not teach or suggest that the IPCF 72 (or IPCF 74), the lines 80 (or 82) and the bus manager 86 (or 88) detect the abnormality of the bus 54 independently of the processor 56 (or 66) of the bus unit 50 (or 52). In

summary, Hammer et al. does not teach or suggest

> a timer counter configured to measure a time during which a logical output of said communication bus remains at a first logical level which is a high level or a low level; and
>
> a comparator configured to compare the time measured by said timer counter with a threshold value and to output an abnormality detection signal indicating an abnormality in said communication bus when the time surpasses said threshold value, wherein the abnormality detection device is independent of a CPU controlling the communication bus and detects the abnormality directly from the communication bus.

Therefore, it is submitted that claim 1 patentably distinguishes over the prior art.

CLAIMS 2 AND 3

Claims 2 and 3 depend, directly or indirectly, from claim 1 and include all the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claims 2 and 3 patentably distinguish over the prior art.

CLAIM 7

On pages 3 and 4 of the Office Action the Examiner takes the position that the above-described portions of Hammer et al. also teach the claim features of claim 7. Claim 7 is directed to a microcomputer connected to a communication bus wherein the microcomputer includes:

> a timer counter configured to measure a time during which a logical output of said communication bus remains at a first logical level which is a high level or a low level; and
>
> a comparator configured to compare the time measured by said timer counter with a threshold value and to output an abnormality detection signal indicating an abnormality in said communication bus when the time surpasses said threshold value, wherein the timer counter and the comparator are independent of the CPU and are

operatively coupled to detect the abnormality directly from the
communication bus.

Therefore, it is submitted that claim 7 patentably distinguishes over Hammer et al.

CLAIM 9

Claim 9 depends from claim 1 and includes all the features of that claim plus additional
features which are not taught or suggested by the prior art. Therefore, it is submitted that claim
9 patentably distinguishes over the prior art.

CLAIM 11

Claim 11 is directed to an abnormality detection device and is broader than claim 1.
Claim 11 recites:

> a timer counter configured to measure a time during
> which a logical output of said communication bus remains at
> a first logical level; and
> a comparator configured to compare the time
> measured by said timer counter with a threshold value and to
> output a signal indicating an abnormality in said
> communication bus when the time surpasses said threshold
> value, wherein the abnormality detection device is
> independent of a CPU controlling the communication bus and
> detects the abnormality directly from the communication bus.

As described above, these features are not taught or suggested by Hammer et al. Therefore, it
is submitted that claim 11 patentably distinguishes over the prior art.

ALLOWABLE SUBJECT MATTER

On pages 4-6 of the Office Action, the Examiner indicates that claims 4-6, 8, 10 and 12
contain allowable subject matter and that claims 4 and 6 would be allowable if rewritten in
independent form including all of the limitations of the base claim. Claim 6 is directly dependent
upon claim 5. Since claim 5 ahs been allowed, the Applicant respectfully submits that claim 6 is
patentably distinguishable over the prior art. It is further submitted that claim 4 is patentable at
least due to its dependence from claim 1 and due to the patentable subject matter recognized by
the Examiner.

CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, it is respectfully submitted that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. An early action to that effect is courteously solicited.
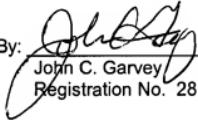
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: July 5, 2007

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